We claim:

1. A system for converting a conventional, non-wireless electrocardiograph monitoring system to a wireless electrocardiograph monitoring system comprising:

a body electronics unit for acquiring electrical signals from a chest assembly and wirelessly transmitting the electrical signals to a base station, the base station a having a plurality of snap terminals for transmitting the electrical signals to any conventional electrocardiograph monitor, the base station having a user interface for communicating information to the user.

2. The system of claim 1 further comprising an apparatus for pairing the base station with the body electronics unit.

3. The system of claim 2 wherein the apparatus is a token key.

4. The system of claim 1 wherein the base station controls the data collected by the chest assembly.

5. A system for monitoring cardiac activity in a patient comprising, in combination:

a chest assembly having a plurality of electrode connectors removably connected to a plurality of electrodes that detect electrical signals from a patient's heart;

a body electronics unit removably connected to the chest assembly, the body electronics unit acquiring the electrical signals from the chest assembly and transmitting the electrical signals to a base station via radio transmission, the body electronics unit having a user interface for communicating information to the user;

the base station including a receiver for receiving the electrical signals and a plurality of snap terminals for connecting to an electrocardiograph monitor via monitor cables, the base station having a user interface for communicating information to the user.

6. The system of claim 5 wherein the user interfaces of the body electronics unit and the base station communicate information pertaining to the system's operating status.

7. The system of claim 5 further comprising a token key for pairing the body electronics unit with the base station.

8. The system of claim 5 wherein the base station includes a cradle for storing the body electronics unit.

9. The system of claim 1 wherein the chest assembly has five electrode connectors for connecting to electrodes.

10. The system of claim 9 wherein an electrode is positioned on the right side of a patient's chest about level of the first and second intercostal space, an electrode is positioned on the left side of the patient's chest about level of the first and second intercostals space, an electrode is positioned in the middle of the patient's chest about level of the fourth and fifth intercostals space, and two electrodes are positioned on the left side of the patient's torso.

11. The system of claim 1 wherein the on body electronics unit and the base station each have a battery port for removably retaining a battery.

12. The system of claim 11 wherein the battery is compatible with the battery port of the body electronics unit and the battery port of the base station.

13. A system for monitoring cardiac activity in a patient comprising, in combination:

a chest assembly for detecting information pertaining to electrical signals from a patient's heart, the chest assembly having a plurality of electrically conductive elements that form a flexible circuit for transmitting electrical signals detected by a plurality of electrodes, the chest assembly having an insulating layer for insulating the electrically conductive element, thereby reducing external interferences with the chest assembly,

an body electronics unit removably connected to the chest assembly via an assembly connector, the body electronics unit having a transmitter for transmitting the electrical signals

to a base station via radio transmission, the body electronics unit having a user interface for communicating information pertaining to the system's operating status; and

the base station including a receiver for receiving the electrical signals sent from the transmitter of the body electronics unit via radio transmission, the base station having a plurality of snap terminal connected to electrocardiograph monitor cables for transmitting the electrical signals to an electrocardiograph monitor, the base station having a user interface for communicating information pertaining to the system's operating status, the base station having a cradle for storing the body electronics units.

14. A system for monitoring cardiac activity in a patient comprising, in combination:

a chest assembly having a plurality of electrode connectors removably connected to a plurality of electrodes that detect electrical signals from a patient's heart;

a precordial assembly having a plurality of electrode connectors removably connected to a plurality of electrodes that detect electrical signals from a patient's heart;

a body electronics unit removably connected to the chest assembly connector and the precordial assembly connector, the body electronics unit receiving the electrical signals from the chest assembly and the precordial assembly;

a base station for acquiring the electrical signals from the body electronics unit via radio frequency transmission, the base station having a plurality of snap terminals for connecting to electrocardiograph monitor cables, the electrical signals transmitted to an electrocardiograph monitor via the electrocardiograph monitor cables.

15. The system of claim 14 further comprising a token key for pairing the body electronics unit with the base station.

16. The system of claim 14 wherein the body electronics unit includes a user interface for communicating information to the user.

17. The system of claim 14 wherein the base station includes a user interface for communicating information to the user.

18. The system of claim 14 wherein the base station includes a cradle for storing the body electronics unit.

19. A system for wireless transmission of physiological signals from a physiological sensor to a monitor comprising:

a body electronics unit, the physiological sensor removably coupled to the body electronics unit, the physiological signals transmitted to the body electronics unit whereby the body electronics unit wirelessly transmits the physiological signals to a base station, the base station a having a plurality of snap terminals for transmitting the physiological signals to any conventional monitor, the base station having a user interface for communicating information to the user.

20. The system of claim 19 further comprising a token key for pairing the body electronics unit with the base station.

21. A system for wireless transmission of physiological signals from a physiological sensor to a monitor comprising:

a body electronics unit, the physiological sensor removably coupled to the body electronics unit, wherein measurement of physiological signals is activated by completion of a circuit formed between the body electronics unit and a connector on the physiological sensor;

an apparatus for wirelessly pairing the body electronics unit to the physiological sensor.

22. The system of claim 21 wherein power to the body electronics unit is activated by completion of the circuit.

23. The system of claim 21 wherein the apparatus is a token key.

24. The system of claim 21 wherein the body electronics unit includes a tongue that corresponds to a groove in the physiological sensor connector.

25. The system of claim 23 wherein the physiological sensor connector includes a tongue that corresponds to a groove in the body electronics unit.

26. The system of claim 19 wherein the physiological signals pertain to information selected from the group consisting of pulse, respiration rate, heart rate, temperature, EEG signals, and pulse oximeter signals.

27. The system of claim 21 wherein the physiological signals pertain to information selected from the group consisting of pulse, respiration rate, heart rate, temperature, EEG signals, and pulse oximeter signals.

28. A chest assembly for detecting electrical signals from a patient's heart comprising:

an electrode retaining section having a plurality of electrode connectors for releasably connecting to electrodes;

a chest assembly connector attached to the electrode retaining section; and

a sensor pin on the chest assembly connector for completing a circuit within a body electronics unit.

29. The chest assembly of claim 28 wherein the electrode retaining section includes at least one expandable arm.

30. The chest assembly of claim 29 wherein the electrode retaining section further includes an arcuate section, a linear run, and an extension arm.

31. The chest assembly of claim 30 wherein the electrode retaining section is connected to the chest assembly connector by a linear section.

32. The chest assembly of claim 31 wherein the arcuate section abuts the linear section, a first expandable arm attaches to the arcuate section and an electrode connector attaches to the first expandable arm, a transition section abuts the arcuate section and an electrode connector attached to the transition section, a linear run abuts the transition section and an electrode connector attaches to the linear run, and a second expandable arm and an extension arm attach to the linear run, an electrode connector attaches to the second extension arm and an electrode connector attaches to the second expandable arm.

33. The chest assembly of claim 28 wherein the sensor pin completes the circuit within the body electronics unit when the chest assembly connector is inserted into a chest assembly port in the electronics unit.

34. The chest assembly of claim 33 wherein the power of the body electronics unit is activated when the sensor pin completes the circuit within the body electronics unit.

35. The chest assembly of claim 28 wherein the chest assembly connector includes retaining flanges.

36. The chest assembly of claim 35 wherein the retaining flanges removably secure the chest assembly connector to a body electronics unit.

37. The chest assembly of claim 28 wherein the chest assembly connector includes a plurality of electrically conductive elements sufficiently spaced to prevent arcing across the electrically conductive elements.

38. The chest assembly of claim 28 wherein the chest assembly connector includes a plurality of spring flanges.

39. The chest assembly of claim 38 wherein the spring flanges provide a tension against a chest assembly port to secure the chest assembly connector within the chest assembly port.

40. The chest assembly of claim 28 wherein the chest assembly connector further comprises at least one tongue corresponding to at least one groove in a chest assembly port.

41. The chest assembly of claim 40 wherein the chest assembly connector includes a plurality of electrically conductive elements sufficiently spaced to prevent arcing across the electrically conductive elements.

42. The chest assembly of claim 28 wherein the chest assembly connector includes a plurality of ribs to prevent the electrically conductive elements from contacting objects when the chest assembly connector is not secured within the body electronics unit.

43. The chest assembly of claim 28 wherein the chest assembly connector includes a plurality of spring flanges.

44. The chest assembly of claim 43 wherein the chest assembly connector further comprises at least one tongue corresponding to at least one groove in the chest assembly port.

45. The chest assembly of claim 44 wherein the electrically conductive elements are spaced to permit the chest assembly to withstand a defibrillation shock.

46. The chest assembly of claim 28 wherein an electrode is positioned on the right side of the patient's chest about level of the first and second intercostal space, an electrode is positioned on the left side of the patient's chest about level of the first and second intercostal space, an electrode is positioned in the middle of the patient's chest about level of the fourth and fifth intercostal space, and two electrodes are positioned on the left side of the patient's torso.

47. A chest assembly for detecting electrical signals from a patient's heart comprising:

a base layer having a first side and a second side, the first side attached to a plurality of electrically conductive elements, the second side attached to a shielding layer;

a first insulating layer positioned above the base layer; and

a second insulating layer positioned below the base layer.

48. The chest assembly of claim 47 wherein the electrically conductive elements connect to electrode connectors and a chest assembly connector.

49. The chest assembly of claim 47 wherein the shielding layer has a X-patterned grid construction.

50. The chest assembly of claim 47 wherein the shielding layer comprises a single layer of dielectric material.

51. The chest assembly of claim 47 wherein the shielding layer comprises multiple layers of dielectric material.

52. The chest assembly of claim 28 wherein the chest assembly connects to a telemetry transmitter via an adaptor assembly.

53. The chest assembly of claim 28 wherein the chest assembly connects to a electrocardiograph monitor via an adaptor assembly.

54. The chest assembly of claim 32 wherein a perforated seam extends lengthwise along the extension arm to removably connect the extension arm to the linear run, whereby the extension arm can be selectively positioned on the patient's body when the perforated seam in broken.

55. A precordial assembly for detecting electrical signals from a patient's heart comprising:

a precordial assembly connector,

a flexible electrode retaining section connected to the precordial assembly connector, the electrode retaining section removably attached to a plurality of electrode connectors for connecting to electrodes.

56. The precordial assembly of claim 54 wherein the electrode retaining section is connected to the precordial assembly connector by a linear section.

57. The precordial assembly of claim 56 wherein the electrode retaining section includes at least on extension arm.

58. The precordial assembly of claim 57 wherein the electrode retaining section further includes a plurality of arcuate sections and a plurality of transition segments.

59. The precordial assembly of claim 58 wherein a first arcuate section abuts the linear section, a first transition section abuts a first arcuate section and an electrode connector attaches to the first transition segment, the extension arm connects to the first transition section and an electrode connector attaches to the first extension arm, a second arcuate section abuts the first transition section, a second transition section abuts the second arcuate section and an electrode connector attaches to the second transition section, a second extension arm connects to the second transition section and an electrode connector attaches to the second extension arm, a third arcuate section abuts the second transition section, a third transition segment abuts the third arcuate section and an electrode connector attaches to the third transition segment, and a fourth arcuate section abuts the third transition segment and an electrode connector attaches to the fourth arcuate section.

60. The precordial assembly of claim 54 further comprising:

a base layer having a first side and a second side, the first side attached to a plurality of electrically conductive elements, the second side attached to a shielding layer;

a first insulating layer positioned above the base layer; and

a second insulating layer positioned below the base layer.

61. The precordial assembly of claim 60 wherein the shielding layer has a X-patterned grid construction.

62. The precordial assembly of claim 60 wherein the shielding layer comprises a single layer of dielectric material.

63. The precordial assembly of claim 60 wherein the shielding layer comprises multiple layers of dielectric material.

64. The precordial assembly of claim 55 wherein the precordial assembly connects to a telemetry transmitter via an adaptor assembly.

65. The precordial assembly of claim 55 wherein the precordial assembly connects to an electrocardiograph monitor via an adaptor assembly.

66. A body electronics unit for use in a system for monitoring cardiac activity in a patient comprising:

a chest assembly port for removably receiving a chest assembly connector attached to a chest assembly, the chest assembly connector including a sensor pin that completes a circuit within the body electronics unit when the chest assembly connector is inserted into the chest assembly port, wherein electrical signals detected from a patient's heart are transmitted to the body electronics unit via the chest assembly.

67. The body electronics unit of claim 66 further comprising a user interface for communicating information to a user.

68. The body electronics unit of claim 67 wherein the information pertains to the system's operating status.

69. The body electronics unit of claim 67 wherein the information pertains to the order for pairing the body electronics unit to a base station.

70. The body electronics unit of claim 66 wherein the power of the body electronics unit is activated by when the sensor pin completes the circuit within the body electronics unit.

71. The body electronics unit of claim 66 further comprising a lead off function for continuously monitoring the integrity of connections between electrode connectors and electrodes.

72. The body electronics unit of claim 66 further comprising a lead off function for monitoring the connections between the electrodes and the electrode connectors.

73. The body electronics unit of claim 66 further comprising a self test function for monitoring the integrity of the system's functions.

74. The body electronics unit of claim 66 further comprising a transmitter for transmitting the electrical signals to a base station via radio frequency transmission.

75. The body electronics unit of claim 66 further comprising a token key port for removably receiving a token key, the token key used to pair the body electronics unit with the base station.

76. The body electronics unit of claim 66 further comprising a precordial assembly port for removably receiving a precordial assembly connector attached to a precordial assembly, wherein electrical signals detected from the patient's heart are transmitted to the body electronics unit via the precordial assembly.

77. The body electronics unit of claim 66 further comprising a transmitter for receiving electrical signals from the chest assembly and the precordial assembly and for transmitting the electrical signals to the base station.

78. The body electronics unit of claim 66 further comprising a battery port for removably receiving a body electronics unit battery.

79. The body electronics unit of claim 78 wherein the body electronics unit battery is interchangeable with a base station battery.

80. The body electronics unit of claim 66 wherein the body electronics unit is removeably secured to a patient via an armband.

81. The body electronics unit of claim 75 wherein the token key includes a microchip and a plurality of tongues that fit within grooves located in the token key port.

82. The body electronics unit of claim 75 wherein a user pairs the body electronics unit with the base station by

inserting the token key into a token key port of the base station to record an identification number of the base station;

removing the token key from the token key port of the base station;

inserting the token key into the token key port of the body electronics unit to record an identification number of the body electronics unit and to transmit the identification number of the base station to the body electronics unit;

removing the token key port from the token key port of the body electronics unit;

and inserting the token key into the token key port of the base station to transfer the identification number of the body electronics unit to the base station.

83. The body electronics unit of claim 75 wherein a user pairs the body electronics unit with the base station by

inserting the token key into the token key port of the body electronics unit to record an identification number of the body electronics unit;

removing the token key from the token key port of the body electronics unit;

inserting the token key into a token key port of the base station to record an identification number of the base station and to transmit the identification number of the body electronics unit to the base station;

removing the token key port from the token key port of the base station; and

inserting the token key into the token key port of the body electronics to transfer the identification number of the base station to the body electronics unit.

84. The body electronics unit of claim 66 further comprising a resister connected to the chest assembly port to prevent excessive electrical current from entering the body electronics unit, thereby permitting the body electronics unit to withstand a defibrillation shock.

85. A base station for use in a system for monitoring cardiac activity in a patient comprising:

a receiver for receiving electrical signals sent from a body electronics unit; and

a plurality of snap terminals for connecting to electrocardiograph monitor cables for transmitting the electrical signals to an electrocardiograph monitor.

86. The base station of claim 85 further comprising a user interface for communicating information to a user.

87. The base station of claim 86 wherein the information pertains to the system's operating status.

88. The base station of claim 86 wherein the information pertains to the order for pairing the base station to a body electronics unit.

89. The base station of claim 85 further comprising a token key port for removably receiving a token key, the token key used to pair the base station with a body electronics unit.

90. The base station of claim 89 wherein the token key includes a microchip and a plurality of tongues that fit within grooves located in the token key port

91. The base station of claim 85 further comprising a cradle for storing a body electronics unit.

92. The base station of claim 85 further comprising a battery port for removably receiving a base station battery.

93. The base station of claim 92 wherein the base station battery is interchangeable with a body electronics unit battery.

94. The base station of claim 85 further comprising a lead switch for instructing the base station to operate in either a 7 lead mode or 12 lead mode.

95. The base station of claim 85 wherein the base station is removably secured to an ECG monitor.

96. The base station of claim 89 wherein a user pairs the base station with a body electronics unit by

inserting the token key into the token key port of the base station to record an identification number of the base station;

removing the token key from the token key port of the base station;

inserting the token key into a token key port of the body electronics unit to record an identification number of the body electronics unit and to transmit the identification number of the base station to the body electronics unit;

removing the token key port from the token key port of the body electronics unit; and

inserting the token key into the token key port of the base station to transfer the identification number of the body electronics unit to the base station.

97. The base station of claim 89 wherein a user pairs the base station with the body electronics unit by

inserting the token key into a token key port of the body electronics unit to record an identification number of the body electronics unit;

removing the token key from the token key port of the body electronics unit;

inserting the token key into the token key port of the base station to record an identification number of the base station and to transmit the identification number of the body electronics unit to the base station;

removing the token key port from the token key port of the base station; and

inserting the token key into the token key port of the body electronics unit to transfer the identification number of the base station to the body electronics unit.

98. A method of monitoring the cardiac activity in a patient comprising the steps of:

detecting electrical signals from a patient's body with a chest assembly;

transmitting the electrical signals from the chest assembly to a body electronics unit, the body electronics unit having a user interface for communicating information to a user;

transmitting the electrical signals from the body electronics unit to the base station via radio frequency transmission, the base station having a user interface for communicating information to the user; and

transmitting the electrical signals from the base station to an electrocardiograph monitor.

99. A method of monitoring the cardiac activity in a patient comprising the steps of:

positioning a chest assembly on a patient's body, the chest assembly having a plurality of electrode connectors for connecting to a plurality of electrodes;

plugging the chest assembly into a body electronics unit, the body electronics unit having a user interface that communicates information to a user;

pairing the body electronics unit with a base station through the use of a token key;

detecting electrical signals from the patient's heart with the chest assembly;

transmitting the electrical signals from the chest assembly to the body electronics unit;

transforming the electrical signals from analog signals into digital signals;

transmitting the digital signals to the base station via radio transmission, the base station having a user interface for communicating information to the user;

transforming the digital signals into analog signals; and

transmitting the analog signals to an electrocardiograph monitor.

100. A routine for monitoring cardiac activity in a patient comprising the steps of:

a procedure for radio frequency linking a body electronics unit to a base station using a token key;

a procedure for obtaining electrical signals from a patient's heart;

a procedure for transmitting the electrical signals to the body electronics unit located on the patient's body;

a procedure for transmitting the electrical signals from the body electronics unit to the base station via radio transmission;

a procedure for transmitting the electrical signals from the base station to an electrocardiograph monitor; and

a procedure for displaying the information on the monitor.

101. The routine of claim 100 wherein the procedure for obtaining electrical signals from the patient's heart includes detecting the electrical signals with a plurality of electrodes connected to a chest assembly via electrode connectors.

102. The routine of claim 100 wherein the procedure for transmitting the electrical signals to the body electronics unit includes removably inserting a chest assembly connector attached to the chest assembly into a chest assembly port located in the body electronics unit, the

electrical signals transmitted from the electrodes to the body electronics unit via the chest assembly.

103. The routine of claim 100 wherein the procedure for transmitting the electrical signals from the base station to the electrocardiograph monitor includes removably connecting electrocardiograph monitor cables to a plurality of snap terminal located on the base station, the electrical signals transmitted from the snap terminals to the electrocardiograph monitor via the electrocardiograph monitor cables.

104. The routine of claim 100 wherein the user interface of the body electronics unit and the base station communicate information pertaining to the operation of the body electronics unit and the base station and instructions pertaining to the linking of the body electronics unit and the base station.